

## **REMARKS**

Claims 1-15 are currently pending in the present application. Claim 10 has been withdrawn from further consideration. Claim 15 is allowed and Claims 1-9 and 11-14 have been rejected. Claim 1 has been amended to more clearly define the present invention removing “comprising” and replacing that term with “consisting essentially of”.

Reconsideration and allowance of the above referenced application is respectfully requested.

Applicants thank the Examiner for determining that Claim 15 is in condition for allowance.

### **Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 2, 4, 6-9, 11, 13, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Haase et al. (U.S. Patent 4,178,438) in view of Wieser-Linhart (U.S. Patent 5,762,662).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Haase et al. (U.S. Patent 4,178,438) in view of Wieser-Linhart (U.S. Patent 5,762,662) and further in view of Sato et al. (U.S. Patent 4,206,080).

Claims 5 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Haase et al. (U.S. Patent 4,178,438) in view of Wieser-Linhart (U.S. Patent 5,762,662) and further in view of Hondroulis et al. (U.S. Patent 6,027,652).

Each of the above recited rejections of claims relies on the primary reference of Haase et al. and a common secondary reference, Wieser-Linhart. For this reason, Applicants arguments regarding the three rejections are jointly presented below. Applicants respectfully assert that the above recited rejections are overcome by the present amendment to the claims, which limits the adsorbent material to “consisting essentially of” a natural cellulose-based material.

The present invention, as now claimed, is drawn to a method for treating a contaminated fluid that contains at least one soluble contaminant, the method including packing a column with adsorbent material, the adsorbent material “consisting essentially of” a natural cellulose-based material. By this amendment, Applicants have limited the claimed invention so as to not include cellulose-based materials, which have been modified to change the natural reactive characteristics such as the cationically modified cellulose material and the activated carbon, which are the only materials taught by the Haase et al. reference. The adsorbent natural cellulose-based material of the present invention is used until spent, it is then removed from the column and composted to reduce the volume of spent adsorbent material and to concentrate the adsorbed contaminant.

As indicated above, Haase et al., does not teach a natural cellulose material but, instead, is directed only to a cationically modified cellulose material that can be used with activated carbon. The majority of the disclosure of Haase et al. and all of the claims of the patent are directed to the cationically modified material. As pointed out in the Official Action, Haase et al. does assert in the specification that up to 100% of the dissolved impurities can be removed from the effluents; however, Haase et al. does not teach or suggest that a natural, unmodified cellulose material can adsorb soluble contaminants from a contaminated fluid. In fact, Haase et al., in addition to disclosing only non-natural, cationically modified cellulose materials also teaches the inclusion of well-known, non-cellulose-based adsorbents such as activated carbon in substantial amounts, preferably between 10% to 70% by weight of the of the total modified cellulose material (See Col. 13, lines 14-22). Thus, Haase et al. suggests but does not claim the successful adsorption of dissolved contaminants from effluents using a cationically modified cellulose in combination with a known non-cellulose adsorbent, such as activated carbon. The disclosure of Haase et al. is not the Applicants invention and does not suggest that a natural cellulose-based material without the aid of a well known adsorbent such as activated carbon could be successfully employed as an

adsorbent material as is claimed by Applicants. Haase et al. fails to teach or suggest the possibility of adsorbing soluble contaminants from a contaminated fluid using an adsorbent material that consists essentially of unmodified, natural cellulose adsorbents. Haase et al., therefore fails as a primary reference over the Applicants method as now claimed. Further, Applicants point out that in repeated examination searches during the prosecution of this application, the Haase et al. teaching of a non-natural, cationically modified cellulose material used in combination with a well known noncellulose material, activated carbon, is the primary (yet completely inadequate) reference cited in the present rejection of the claims.

The secondary reference cited in the Official Action, Wieser-Linhart, fails to make up for the deficiencies of Haase et al. As previously argued by Applicants, Wieser-Linhart is directed to a process that is not at all similar to that claimed by the Applicants. Wieser-Linhart is only directed to binding emulsified resin and tar substances, which are suspended in water, to wood dust that is circulated along with the oil/water emulsion. Wieser-Linhart does not disclose the removal of soluble contaminants from a contaminated liquid by use of an adsorbent packed column. The Wieser-Linhart reference is only cited in the present rejection because of an isolated, singular statement that the residual product can be disposed of by burning or composting. Wieser-Linhart fails to teach a remotely similar process to that of the Applicants claimed method and further, fails to teach the required elements of the Applicants invention of "...removing said spent cellulose-based material; and composting said spent cellulose-based material to reduce the volume of spent cellulose-based material and degrade and concentrate said at least one adsorbed contaminant." Wieser-Linhart's simplistic statement regarding two possible options (burning or composting) for disposing of wood dusts that was used to remove oil from an oil/water emulsion is hardly suggestive of the Applicants' claimed method. Unlike Wieser-Linhart, Applicants' invention first requires that an adsorbent cellulose material be packed into a

column through which a contaminated liquid containing soluble contaminants is passed, allowing the adsorbent material to remove the soluble contaminants until saturated, then removing the spent adsorbent material and composting the same for the purpose of reducing the volume of the spent adsorbent material and degrading and concentrating the removed soluble contaminant. There is no teaching or suggestion of the combination of steps in the Applicants claimed invention that can be drawn from extracting a single word, “composting” from a reference that teaches a method unrelated to the method of the claimed invention. Wieser-Linhart is no more applicable to the Applicant’s claimed invention than would be any gardening manual that suggested simple composting.

With regard to the Sato et al. reference, it is cited in the rejection of Claim 3 solely for the purpose of teaching that water may be passed through a column in either an upward or downward direction. Sato et al. does not make up for the deficiencies of the above discussed primary and secondary references.

With regard to the Hondroulis et al. reference, it is cited in the rejection of Claims 5 and 12 solely for the purpose of teaching that kenaf can be used as a sorbent for oil spills and particularly teaches spreading the sorbent materials across the top of the oil layer in a oil/water suspension. Hondroulis et al. does not teach or suggest using kenaf or any cellulose-based material to remove soluble contaminants from a contaminated liquid. Hondroulis et al. is therefore not relevant to the Applicants Claims 5 and 12, which are directed to using kenaf as an adsorbent for removal of soluble contaminants from a contaminated liquid.

In view of the above amendments and accompanying remarks, Applicants respectfully assert that the above recited rejection of Claims 1-9 and 11-14 are rendered moot. Accordingly, it is respectfully requested that the present rejection be withdrawn and Claims 1-9 and 11-14 be determined to be allowable. Further, in view of the extensive search already conducted for a

“natural cellulose-based adsorbent material,” which resulted only in the now rendered-moot Haase et al. reference, Applicants respectfully assert that no further search is required to determine allowability of the claimed invention.


### CONCLUSION

In light of the above, Applicants believe that this application has been placed in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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